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PRE-EMPLOYMENT TEST SCORES AS PREDICTORS IN A
REMEDIAL READING PROGRAM.

THE LOUISIANA STATE UNIVERSITY AND
AGRICULTURAL AND MECHANICAL COL., ED.D., 1979

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PRE-EMPLOYMENT TEST SCORES AS PREDICTORS
IN A REMEDIAL READING PROGRAM

A Dissertation

Submitted to the Graduate Faculty of the
Louisiana State University and
Agricultural and Mechanical College
in Partial Fulfillment of the
Requirements for the Degree of
Doctor of Education

in

The Interdepartmental Program of Education

by
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August 1979

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ABSTRACT

Problem

The purpose of this study was to answer the question, "What is the predictive merit of various pre-employment tests in terms of time needed to upgrade reading skills to the apprentice level?"

Procedure

An upgrade program was designed to improve the reading level of low skilled workers to a point where they could be successful in an apprentice program. Comprehension, vocabulary, sequencing, and study skills were the basic reading skills taught in the pre-apprentice program.

Ninety-nine low skilled workers at a petro-chemical complex participated in the two year remedial reading program. These individuals had been employees of the industry for a number of years. The sample of this study consisted of eighty-four employees who met the terminal reading criterion.

Analysis of Data

A battery of tests were administered to the participants of this study before they were hired by the industrial complex. This battery included four standardized

tests: 1) Bennett Mechanical Comprehension Test (ME), 2) Advanced California Mathematics Test (MA), 3) Test of Chemical Comprehension (CH), and 4) a learning abilities test called Personnel Questionnaire (LA). A coefficient of correlation was run between the pre-employment test scale scores and the length of time each employee required to meet the terminal criterion in reading.

Findings

In review of the five coefficients of correlation it was found that three of the variates (MA, ME and composite scores with hours) produced no significant value in predicting time required to upgrade reading skills to the apprentice level. Two of the correlations (LA and CH with hours) were significant at the .05 level.

The predictors (LA and CH) having sufficient validity were combined to obtain the highest multiple correlation (R) with the criterion. The Personnel Questionnaire and Test of Chemical Comprehension correlation scores of $-.29$ and $-.24$ and an intercorrelation of $-.12$ yielded a multiple R of $.40$ signifying an improvement in predictive efficiency over that from either test alone. This coefficient was significant at the .01 level.

A regression equation was derived to predict the training time from the Personnel Questionnaire and Test of Chemical Comprehension scores. From this equation

a regression table was constructed to facilitate the anticipation of remedial reading times when scores from the LA and CH tests were known.

Conclusions

The results from this study indicated that the Bennett Mechanical Comprehension Test, Advanced California Mathematics Test and the composite test scores had no predictive merit. However, coefficients of correlation for the Chemical Comprehension Test and The Personnel Questionnaire were significant and warranted further investigation concerning predictive values.

The petro-chemical industry used in this study could conclude that a prospective employee with a low CH score and a low LA score could be expected to require a longer length of time to upgrade reading skills to that of the apprentice level than an individual with a higher score on these two tests. The predictive equation constructed from this study could be expected to be accurate by using the standard error of estimate 2 in 3 instances. Factors such as physiological, psychological and sociological problems could be expected to affect the accuracy in 1 out of 3 situations.

CHAPTER 1

INTRODUCTION

For several years a major industrial complex hired employees to perform low skilled work. The industry had anticipated that through training opportunities provided by the company or by the community these individuals would strengthen their educational skills and move into apprentice programs.

Many employees hired as low skilled workers did complete apprentice programs. However, as a result either of over-estimating the learning potential of some individuals or of the lack of individual desire, little forward mobility was noted in ninety-nine employees.

After careful consideration of the needs of the company, the industrial complex determined to upgrade the individuals within the organization rather than to hire new employees. These individuals had already proved their willingness to work and were known to be dependable.

Negotiations and informational sessions were held with management, union representatives, and the individuals involved before a final agreement was reached concerning an upgrade program. The negotiations resulted in a two year program focusing only on mathematics and reading

skills. The classes were designed to teach the basic skills needed in an apprentice program rather than to teach the apprentice material. The individuals were given paid time from their jobs to attend training classes.

Purpose of the Study

The purpose of this study was to see if a relationship existed between entrance test scores and the amount of training time in a selected remedial reading program at a major industrial petro-chemical complex.

Statement of the Problem

What is the predictive merit of various pre-employment tests in terms of time needed to upgrade reading skills to the apprentice level?

Importance of the Study

The researcher believed this study could be of value to the areas of education and industry.

- The work would be beneficial in helping create an atmosphere of mutual respect between education and industry.
- The study would contribute in the establishment and maintenance of valuable training programs for low skilled workers in business and industry.

- The research would give the petro-chemical complex additional data for use in its training and development programs.
- The study would facilitate the exchange of information among industrial complexes and the general public.
- It would demonstrate needs for professional educators in business and industry.

Definition of Terms

Apprentice Level Material. The Fog Index (Gunning: 1953) was used to determine the readability level of the apprentice material. The average reading level was 9.3. The company employed Robert Gunning, author of the Fog Index, who substantiated the instructors' findings.

Apprentice Program. An apprentice program in this paper refers to organized instruction to provide apprentices knowledge in technical subjects related to their trade. Two or more years training and work experience on the job were recognized as a general qualification of the Federal Committee on Apprenticeship (1956).

Pre-employment Test Scores. The scale scores on the four standardized tests given to all employees before they were hired by the petro-chemical complex represent the pre-employment test scores in this study. The tests

included in the entrance testing were 1) Test of Chemical Comprehension (CH), 2) Advanced California Mathematics Test (MA), 3) Bennett Mechanical Comprehension Test (ME), and 4) a learning abilities test called Personnel Questionnaire (LA). The scale scores converted from the percentile scores on these four tests were used as variates in the statistical comparisons of the length of time it took to reach the reading terminal objectives. (See Appendix A for Terminal Reading Objectives.)

Training. Training was the effort of the industrial complex to provide experiences needed to develop attitudes, skills, and knowledge necessary for satisfactory job performance.

Remedial Reading Instruction. Throughout the report of this investigation, the term "remedial reading" was interpreted as meaning the individualized reading instruction given to participants with severe reading deficiencies that would influence an employee's success in specific apprentice related activities.

Delimitation of the Study

This study was limited to laborers in an industrial complex in need of improving their reading skills to the apprentice level. It was further limited to employees meeting the terminal reading objectives.

Selection of the Subjects

The ninety-nine individuals participating in the remedial reading pre-apprentice program were employees hired as low skilled workers by the industrial complex over a period of years. These ninety-nine employees had made little or no advancement during their employment. However, they had proved their willingness to work and were known to be dependable. These individuals had the choice of 1) going into the training program, 2) staying on their present job and taking a cut in pay, or 3) leaving the company with severance pay. All ninety-nine employees accepted the pre-apprentice training program as a chance for advancement.

Instruments

A battery of tests were administered to the participants of the study before they were hired by the industrial complex. This battery included four standardized tests: 1) Bennett Mechanical Comprehension, 2) Advanced California Mathematics Test, 3) Test of Chemical Comprehension, and 4) a learning abilities test called Personnel Questionnaire.

Statistical Procedure

A coefficient of correlation was computed between pre-employment test scores and the length of time each

employee required to meet the terminal criterion in reading.

Organization of the Study

The study was organized into five chapters.

- Chapter 1 was designed to introduce the study, state the problem, give the purpose, relate its value, explain the limitations, define relevant terms, discuss the instruments used, and explain the procedures.

- A review of the literature related to the study was presented in Chapter 2.

- The correlation procedures and sources of data of the study were explained in Chapter 3.

- Chapter 4 was a presentation and analysis of the collected data.

- The summary, conclusions, and recommendations for future study were included in Chapter 5.

CHAPTER 2

REVIEW OF THE SELECTED LITERATURE

Apprenticeship training programs have played a major part in industry. However, the researcher has limited the review of the literature to the remedial academic areas of training.

Historical Review

The United States Department of Labor (1952:14) reported a form of on-the-job training in an agreement written in 1640. The employer's obligations in this contract with Thomas Millard were to provide "meat, drinke [sic] and clothing;" and at the end of the period, "one new sute [sic] of apparell [sic] & forty shillings in mony [sic]."

Little information was located prior to World War I about job training provided by industry. According to Roberts (1965) job training came to be recognized during World War I. Siegel and Lane (1974) stated that a few years after the end of World War I, the Psychological Corporation was founded to develop and distribute psychological tests and provide consultative services to industrial complexes.

Roethlisberger and Dickson (1939) reported industrial research designed to determine the relationship between working conditions and worker efficiency. This research was termed the Hawthorne Studies. A significant factor about the Hawthorne studies was that they opened a new era of research in industry. The original problem in this study became so involved that it took the researchers fifteen years to complete their work.

Siegel and Lane (1974) and Roberts (1965) brought out in their writings the extensive requirements for low skilled workers in the military during World War II. These needs called for improved personnel assessment and training procedures and added impetus to the development of industrial training as it is known today. The more recent authors noted that the rapid rate of technological change during and after World War II led to the creation of a new area of specialization within industrial training and research. The training had to adjust to the capabilities and limitations of the prospective employees.

The post war period has seen a continued development of industrial training. The U. S. Department of Labor Report (1968), Palmer (1954), Roberts (1965), Evans (1971), Wenig and Wolansky (1972), and Wirtz (1977) discussed factors which influenced job training in industry.

The U. S. Department of Labor Report (1968) indicated training in industry today was forced to change due to:

- 1) society's and industry's concern with human resources;
- 2) unemployment and underemployment;
- 3) scientific and technological advances;
- 4) organized labor's demand for better wages, welfare benefits and working conditions; and,
- 5) employer requirements for workers.

Palmer (1954) reported that workers changed jobs approximately nine times during their working lifetimes, and the majority also changed occupations in the industry in which they worked. Job training has had to change to cope with the mobility of the employee.

Wenig and Wolansky (1972) reported that the Bureau of Labor Statistics indicated changes in the economic and manpower situation which could affect job training in industry. Several of these changes and concerns were noted by the authors (1972:6):

- 1) Diminished need of manufacturing production workers and increased need for service trained personnel;
- 2) Encouragement of industry by government-sponsored programs to train the hardcore unemployed, the underemployed and disadvantaged;
- 3) Legal restrictions over discrimination against older workers requiring industry to hire or retrain and continue to employ the older worker; and

- 4) The influx of more blacks, women, and youth into the labor force.

Roberts (1965) and Evans (1971) stated that the specific use of job training by industry has been to train a newly employed worker, to change an existing employee to another position, to promote a worker, to produce and service a new product, to initiate a new manufacturing procedure, or to increase safety.

Industry has been concerned about general work readiness of new employees. At a state school conference Wirtz (1977:97) commented that the industrial view of education was to "let the schools just be sure people know how to read and write and do arithmetic and then we [industry] will do the rest." Industries have preferred to teach job skills rather than reading and mathematics skills.

A Public Affairs Research Council (PAR) Economic Study (1978) reported that the lack of education and job training was one of the most frequent factors of concern of industries. Furthermore, PAR stated that lower paying jobs requiring little or no education or training were rapidly disappearing. The present day employees were in greater need of high academic skills.

Berry, HEW's Assistant Secretary for Education, was cited in a Baton Rouge Morning Advocate (May 31, 1978) article as saying forty-two percent of the nation's seventeen year olds were functionally illiterate. With

this rate of illiteracy business and industry had to include basic reading and mathematics in their training programs.

Because of these concerns the federal government has initiated various types of corrective programs. These programs, according to Greenleigh Associates (1968), not only provided specific skill training to perform a job in industry, but also provided the trainee support required to remedy his basic educational and personal problems.

The U. S. Department of Labor Summary Guide (1970) listed three federally assisted programs related specifically to industrial remedial reading:

- 1) On-the-Job Training (OJT) provided instruction combined with supervised work with public and private employers at the job sites for unemployed and underemployed persons sixteen years of age and over.

- 2) Manpower Development and Training Act (MDTA) in redevelopment areas furnished classroom and on-the-job training associated with economic development areas designated by the Economic Development Administration.

- 3) Job Opportunities in the Business Sector (JOBS), presently called National Alliance of Businessmen (NAB), was concerned with encouraging private industry to hire, train, retrain and upgrade hardcore unemployed and underemployed individuals eighteen years of age and over.

Employee training, according to Siegel and Lane (1974), has become a concern of great social importance. Educationally and socially deprived persons must be provided opportunities for productive living through training.

Considerable attention has recently been given to training directed towards disadvantaged persons. For one such program conducted by Lockheed Aircraft Company, Hodgson and Brenner (1968) reported the applicants had to meet four of the following five criteria: (a) school dropout, (b) unemployed head of household, (c) income less than \$3,000 during the previous year, (d) poor work history, and (e) no primary work skills. Given these requirements, none of the trainees could have met traditional company hiring standards. Nevertheless by developing programs using appropriate instructional methods, offering frequent reinforcement and recognition, dealing with content that was directly linked to a specific job, and providing jobs that were not dead-ended, trainee retention during the program and after job placement was exceptionally high. The key factor in this particular program seemed to be that it led directly to a job opportunity.

Janson (1970) pointed out that job-skill-only content which is worker-oriented was being phased out. "Worker-oriented content for hardcore," stated Peterson and Rash (1969:7) was "pre-job conditioning."

Nadler (1970:8) identified pre-job conditions as "attitude changing and remedial education, which would augment the possibility of successfully training the hardcore."

Wenig and Wolansky (1972) further substantiated that the type of training for the hardcore unemployed and disadvantaged individuals included more than the traditional skill-based content. The content for these workers consisted of reading, mathematics, science, spelling, communications, and self improvement.

Utgaard and Davis (1970) explained that almost all larger companies have developed formal in-house training programs. These programs relied most heavily upon the use of such well-established techniques as conferences or discussion, job rotation, and on-the-job training although techniques such as simulation, role playing and programmed instruction were growing in popularity. Siegel and Lane (1974) asserted that programmed instruction characterized by self-pacing, active learner participation, and immediate reinforcement has not been found to be the panacea either for education or training.

The U. S. Department of Labor (1962, 1963, and 1971), Utgaard and Davis (1970), and Doeringer and Pione (1966) all conducted surveys concerning the methods of job training in the upgrading of semiskilled and skilled workers. These surveys of methods of accomplishing the job training in the upgrading of semiskilled and skilled workers were

summarized by Wenig and Wolansky (1972:28):

- 1) Training for semiskilled and skilled workers is mostly an informal process.
- 2) This training mostly occurs on the production line with instruction given by the foreman, or another worker.
- 3) The most frequently used technique or method for job training is job-instruction training that takes place on the production line.
- 4) Some training programs are designed to raise the workers' basic educational level through formal classroom instruction.
- 5) Several of these surveys are outdated, which may not reflect present innovative job training methods.
- 6) Mostly informal, on-the-job training techniques are the basic method of upgrading instruction. However, in several high risk industries such as air transportation and banking training is common.

Siegel and Lane (1974) pointed out the success or failure of a training program depended in large measure upon the quality of instruction given to the trainees. A criticism of many training programs was that they were founded upon the incorrect premise that individuals who knew how to do a job were automatically qualified to teach others how to do it.

Bavelas (1955) illustrated the definite need of training the trainer in industrial programs. Learning curves were plotted for three groups of trainees, all taught by the same instructor. At the time he trained the first group, the instructor had received no training in teaching methods; he had received partial instructor training

in the second group; and in the third, he had completed the training program. The extent of instructor training was reflected in performance of the trainees being taught by him as shown in Figure 1. As the instructor's own training increased so did the learning curve of the trainees.

The limited amount of information about industrial job training was substantiated by a letter from Russel B. Flanders, Chief of the Division of Manpower and Occupation Outlook of the U. S. Department of Labor, Bureau of Labor Statistics. He was quoted by Wenig and Wolansky (1972:iii) as saying "the most serious information gap it [Bureau of Labor Statistics] encountered was the lack of comprehensive data on the nature and scope of training in private industry."

Related Studies

Effort was made to locate studies or programs similar to the one reported in this paper. An examination of reference material, reports and documents revealed limited remedial reading programs in industry. Likewise, a number of telephone conversations and visits with individuals in state departments of education, governmental agencies and private research firms did not reveal any similar projects.

A current survey conducted by Glen Gossett of the Louisiana State Department of Education (1978) revealed

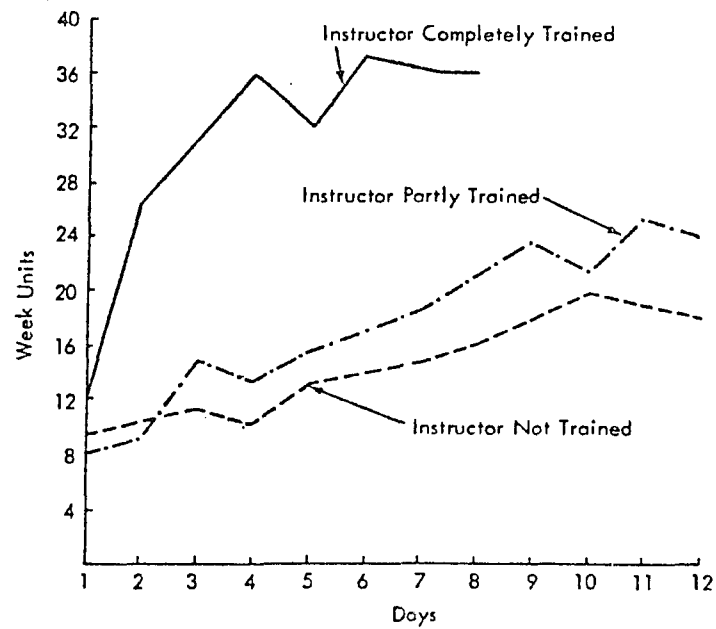


FIGURE 1

LEARNING CURVES OF TRAINEES OF AN INSTRUCTOR AT VARIOUS
STAGES OF THE INSTRUCTOR'S OWN TRAINING
(BAVELAS, 1955:349)

that 14.2 per cent of industries had in-plant programs to improve the basic academic skills of their employees. However, when Gossett visited each of these industries, he found no basic remedial reading programs in operation in any of the industries. He concluded that these industries must have misinterpreted the question on the survey form. According to the State Department of Education there were no known upgrade reading programs in industry in Louisiana.

Research conducted by Bader (1978) and reported in an unpublished dissertation was found to be pertinent to this study. The purpose of that study was to evaluate the effectiveness of a petro-chemical plant's two year pre-apprentice upgrade program. The experimental group was given basic reading and mathematics improvement programs. The scores of the forty-nine pre-apprentices in the experimental group were compared with thirty-two employees who went directly into apprentice classes without basic training. Bader (1978:45) reported that "it appeared as though the pre-apprentice program may have been beneficial from the fact that the experimental group performed significantly better than did the control group on a majority of the tests." It was mentioned, however, that further study was needed before more definite statements concerning this particular upgrade program could be made.

Rowan and Northrup (1972) conducted research concerning remedial education programs in southern papermills. Four of these remedial education programs were relevant to this study. The companies included Crown Zellerbach in Bogalusa, La. and St. Francisville, La.; Continental Can in Hodge, La.; and Boise Southern in DeRidder, La.

The companies formed remedial education programs in order to overcome a situation where long service employees were not qualified for advancement because of their lack of basic reading and mathematics skills. These remedial education programs were designed to teach the employees sufficient reading and mathematics skills in order to move up the progression scale. The industrial personnel also emphasized the need for basic reading skills to decrease the danger to life, property and equipment.

Table 1 revealed that each of the programs made use of a type of programmed material. Rowan and Northrup (1972:5) pointed out that all programs promised more than they could deliver. They also reported the following points concerning these paper mill remedial education programs.

- 1) Relatively few disadvantaged workers completed the courses.
- 2) Those who completed the courses showed little improvement in arithmetic and virtually none in reading.
- 3) There was no relationship between the taking of courses, improvement in test scores, and job advancement.

Table 1
Remedial Education Programs in Southern Papermills

Company	Location	Program	Length of Program
Crown Zellerbach	Bogalusa, Louisiana	Methods of Intellectual Development (MIND)	Sept. 1967- Feb. 1971
Crown Zellerbach	St. Francisville, Louisiana	MIND	Nov. 1969- Aug. 1970
Continental Can	Hodge, Louisiana	MIND	April 1968- Feb. 1971
Boise Southern	DeRidder, Louisiana	Economic and Manpower Corporation (EMC)	Sept. 1969- April 1970

- 4) The packaged courses disregarded the cultural characteristics of the trainees.
- 5) Programmed teaching methods were largely unsuccessful, particularly with adults who lacked literacy. Even more intensive training was of minor additional help.
- 6) The particular conditions and incentives were not such as to produce successful literacy training.

CHAPTER 3

DESIGN OF THE STUDY

An upgrade program was designed to improve the reading level of low-skilled workers to a point where they could be successful in an apprentice program. Comprehension, vocabulary, sequencing, and study skills were the basic reading skills taught in the pre-apprentice program.

The natural resistance by some employees to academic change (setting) was recognized. The program was designed with realistic awareness of the qualities, backgrounds, and capabilities of the participants. Each employee received individualized instruction and was assigned prescriptions according to diagnosed needs. (See Appendix B for a sample assignment sheet.) The Stanford Diagnostic Reading Test and the Adult Basic Learning Examination (ABLE) were administered at the outset of the program for placement and diagnostic purposes. The material used was of adult format and adapted to meet the needs of the instructional objectives. (See Appendix C for partial list of adult material.)

During the course of training the ABLE standardized achievement test and reading skill exercises were used to

evaluate progress and make prescriptions. The ABLE was given every six months, and the reading skills were appraised daily. These evaluations provided information to employees that assisted in self-appraisal of their progress and aided as a motivator for further progress. Monitoring daily work helped the instructional staff to pace an employee at the most effective learning rate. This monitoring pinpointed specific problems such as inadequate mastery of certain skills which were basic to the attainment of the terminal reading criteria. When an employee was able to comprehend apprentice level material with ninety percent accuracy, the participant was given the terminal reading objective test. (See Appendix D for a sample copy of the Reading Objective Test.) When the individual successfully reached the terminal reading objectives, the trainee went into apprentice training. The number of hours required by the employee to reach this point was computed to be used in the statistical correlation in the study.

Treatment of Data

Selection of Subjects

Ninety-nine low skilled workers at a petro-chemical complex participated in a two year remedial reading program. These individuals had been employees of the industry for a number of years. Before entering the program

they were given the options to 1) take part in the upgrade program and graduate into the apprentice program, 2) refuse training and remain in low skilled work at a lower rate of pay, or 3) resign with a severance allowance. All employees given the options chose to take part in the remedial program.

The sample consisted of eighty-four employees who met the terminal reading criterion. Fifteen of the participants were not used in the study: 1) five subjects had incomplete pre-employment test scores, 2) one individual left the company to go into private business, and 3) nine employees did not meet the criterion within the time limits set by the initial contract.

Pre-employment Tests

The scale scores from the battery of tests administered to all employees before being hired by the industry were used as the variates in the study. This test battery included four standardized tests:

- Bennett Mechanical Comprehension Test (ME).

The manual (1968:1) of the ME test stated "the objective of the test was to measure the ability to perceive and understand the relationship of physical forces and mechanical elements in practical situations." Each of the sixty-eight items consisted of a picture illustrating some principles of mechanics and hydraulics followed by a question with two or three alternatives about each

picture. The responses were recorded on a separate answer sheet.

- California Mathematics Test (MA). The MA advanced test consisted of 140 items. The test was divided into sixty reasoning problems and eighty basic fundamental problems. The prospective employee marked the responses on a separate answer sheet.

- Test of Chemical Comprehension (CH). The CH test was composed of fifty statements or questions about common chemical subjects. The individual was directed to mark the one choice which best fit the statement or question in the test booklet. The CH test was a written test with no printed pictures. The applicant's ability to read, as well as his knowledge of the subject matter, affected his score on this test.

- Personnel Questionnaire (LA). The LA was a test of three kinds of problems: 1) block counting, 2) vocabulary, and 3) arithmetic. Reading and understanding the instructions were a part of the test. The examinee was allowed twelve minutes to attempt as many of the fifty-four multiple-choice items as possible. The answers were recorded in the test booklet.

Hours in Program

Daily attendance records were kept for each employee which indicated the length of time required to meet the terminal reading criterion. The total number of

hours used in the study took into consideration 1) holidays, 2) absences, and 3) schedule changes.

Statistical Procedures

The correlation coefficient was used to measure the association between the pre-employment tests and the length of time an employee required to reach the terminal reading criterion. Negative values of the correlation coefficient indicated that increases in the value of the pre-employment test scale scores were associated with decreases in the time needed to meet the reading objectives. Positive correlation indicated that the variables increased simultaneously. Correlation of zero indicated that there was no linear association between the two variables. The values of the correlation coefficients were judged at the .05 level of significance.

Those predictors with sufficient validity to be retained were combined to obtain the highest multiple correlation (R) with the criterion. A regression equation was computed to maximize the predictive effectiveness. The standard error of estimate was derived to determine the accuracy of the predictions from the regression equation.

Chapter 4

PRESENTATION AND ANALYSIS OF THE COLLECTED DATA

The purpose of this chapter was to present and analyze data pertinent to answering the question, "What is the predictive merit of various pre-employment tests in terms of time needed to upgrade reading skills to the apprentice level?" The correlation coefficient was used in this study as a means of measuring the relationship between these variables. Eighty-four trainees in a pre-apprentice remedial reading program who met the terminal reading objectives were used as the subjects in this project. The reading program was designed to last from September 20, 1976 to September 22, 1978.

Correlations With Two Variables

Advanced California Mathematics Test (MA) With Hours in Program

Data shown in Table 2 presented the mean (\bar{x}) score of 18.9 (S.D = 3.49) in the computation of the coefficient of correlation (r) between the MA and number of hours in the program. The coefficient of correlation was computed to be .02. The value of r in this instance was found on a table constructed by Lyle D. Edminson (1963:176) as not having any significance as a predictor.

Table 2

Analysis of Data Relative to the Advanced California
Mathematics Test (X) and Hours in a Remedial
 Reading Program (Y)

ΣXY	NX	ΣX	ΣX^2	NY	ΣY	ΣY^2
178,676	84	1,590	31,106	84	9,409	2,226,415
S.D. = 3.49 \bar{x} = 18.9 r = 0.02						

Bennett Mechanical Comprehension
(ME) With Hours in Program

Data noted in Table 3 indicated the ME scores compared to the hours in the upgrade program were no significance was found at the .05 level. The correlation coefficient calculated was .06. The mean score in this instance was 17.5 (S.D. = 3.88).

Test of Chemical Comprehension (CH)
With Hours in Program

The data shown in Table 4 revealed that the correlation coefficient $-.24$ between the CH and the time required to upgrade a trainee's reading to apprentice level was found to be significant at the .05 level. The negative correlation indicated the higher the score obtained on the CH Test the lower the hours needed in a remedial reading program. The mean score on this correlation was computed as 19.8 (S.D. 3.8).

Personnel Questionnaire (LA)
With Hours in Program

The highest correlation found between individual test scores and time required for remediation of reading skills was with the Personnel Questionnaire (LA). Table 5 contained data which showed the calculation of the coefficient of correlation as $-.29$ which was significant at the .01 level on the table mentioned early in this chapter. The mean was 16.7 (S.D.= 3.4).

Table 3

Analysis of Data Relative to the Bennett Mechanical
Comprehension Test (X) and Hours in a Remedial
 Reading Program (Y)

ΣXY	NX	ΣX	ΣX^2	NY	ΣY	ΣY^2
166,418	84	1,466	26,834	84	9,409	2,226,415
S.D. = 3.88 \bar{x} = 17.5 r = 0.06						

Table 4

Analysis of Data Relative to the Test of Chemical
Comprehension (X) and Hours in a Remedial
 Reading Program (Y)

ΣXY	NX	ΣX	ΣX^2	NY	ΣY	ΣY^2
77,104	84	1,662	34,088	84	9,409	2,226,415

S.D. = 3.8

\bar{x} = 19.8

r = -0.24*

*Significant at the .05 level.

Table 5

Analysis of Data Relative to the Personnel Questionnaire (X)
and Hours in a Remedial Reading Program (Y)

ΣXY	NX	ΣX	ΣX^2	NY	ΣY	ΣY^2
147,199	84	1,400	24,292	84	9,409	2,226,415
S.D. = 3.4 \bar{x} = 16.7 r = -0.29*						

*Significant at the .01 level.

Composite Scores With Hours in Program

A composite of all of the pre-employment scale scores was correlated with the time in the reading program. The composite score was computed into a scale score by the personnel staff of the company separate from this study. The r was found to be $-.12$ which lacks any value as a predictor. The mean was presented as 19 (S.D. = 3.4) shown in data in Table 6.

Review of Single Findings

In review of the five coefficients of correlation it was found that three of the variates (MA, ME and composite scores with hours) revealed no significant value in predicting time required to upgrade reading skills to the apprentice level. Two of the correlations (LA and CH with hours) were significant at the .05 level.

Multiple Correlation Summation

The predictors (LA and CH) having sufficient validity were combined to obtain the highest multiple correlation (R) with the criterion. The LA and CH correlation scores of $-.29$ and $-.24$ and an intercorrelation of $-.12$ yielded a multiple R of $.40$ signifying an improvement in predictive efficiency over that from either test alone. This coefficient was significant at the .01 level.

Table 6

Analysis of Data Relative to the Composite Test Scores (X)
and Hours in a Remedial Reading Program (Y)

ΣXY	NX	ΣX	ΣX^2	NY	ΣY	ΣY^2
174,608	84	1,596	31,308	84	9,409	2,226,415
$S.D. = 3.4$ $\bar{X} = 19$ $r = -0.12$						

Regression Equation

The CH and LA scores having the highest validity were selected and weighted to derive a regression equation to maximize their effectiveness. This regression equation was used to predict the training time from the LA and CH pre-employment scores. The equation was

$$X_1 = (-11.4 \times LA) - (8.81 \times CH) + 476.7$$

Given a trainee's LA and CH pre-employment scores the probable number of hours the individual would require to meet the reading criterion could be estimated from this formula. Using a hypothetical case one could suppose that an employee had a LA score of 16 and a CH score of 20. Substituting these scores in the predictive equation, $[X_1 = (-11.4 \times 16) - (8.81 \times 20) + 476.7]$, the most likely number of hours the trainee would require to meet the reading criterion as predicted from pre-employment CH and LA scores would be 118. Table 7 contained data which was constructed from the preceding formula for the purpose of predicting remedial reading instruction time when LA and CH test scores are known.

The standard error of estimate in this study was found to be 109 hours. This means that chances were 2 in 3 that the trainee's predicted training time should lie within ± 109 hours of the predicted instruction time. Factors such as physiological, psychological and sociological problems could be expected to affect the accuracy in 1 out of 3 situations.

Table 7

Predictions of Reading Remediation Time From
Personnel Questionnaire (LA) and Chemical
Comprehension (CH) Test Scores*

		CH Scale Scores												
		8	10	12	14	16	18	20	22	24	26	28	30	32
LA Scale Scores	8	315	297	280	262	245	227	209	192	174	156	139	121	104
	10	292	275	257	239	222	204	187	169	151	134	116	98	81
	12	269	252	234	217	199	181	164	146	128	111	93	76	58
	14	247	229	211	194	176	159	141	123	106	88	70	53	35
	16	224	206	189	171	153	136	118	100	83	65	48	30	12
	18	201	183	166	148	131	113	95	78	60	42	25	7	-10
	20	178	160	143	125	108	90	73	55	37	20	-2	-16	-33
	22	155	138	120	103	85	67	50	32	14	-3	-21	-38	-56
	24	133	115	97	80	62	45	27	9	-8	-26	-44	-61	-79
	26	110	92	75	57	39	22	4	-14	-31	-49	-66	-84	-102
	28	87	69	52	34	17	1	-19	-36	-54	-72	-89	-107	-124
	30	64	47	29	11	6	-24	-41	-59	-77	-94	-112	-130	-147
	32	41	24	6	-11	-29	-46	-64	-81	-99	-119	-135	-152	-170

*Correction factor of ± 109 hours.

To Find the remedial instruction time:

1. Locate the LA Score in the left hand margin of the table.
2. Locate the CH Score along the top of the table.
3. The intersection of the row containing the LA Score and the column containing the CH Score gives the hours of probable instruction time.

Chapter 5

SUMMARY AND CONCLUSIONS

Summary

This study was concerned with the predictive merit of various pre-employment tests in terms of time needed to upgrade reading skills to the apprentice level. During a two year industrial remedial reading program eighty-four trainees met the terminal reading objectives forming the sample for this study. The basic skills of comprehension, vocabulary, sequencing and study skills were taught during the pre-apprentice program. The average time required to meet the criterion was 112 hours of instruction. When the individual met the criterion of the program, the trainee went into the regular apprentice program.

All employees of the company were given a battery of pre-employment tests prior to being hired. The coefficient of correlation was computed between these test scores and the hours in the reading program to determine the tests' predictive values. The r was tested on these correlations for significance at the .05 level.

Findings

On the basis of the data of this study the following findings were drawn:

- There was no significant relationship ($r=.06$) between the Bennett Mechanical Comprehension (ME) and hours in the remedial reading program.

- Negligible relationship ($r=.02$) existed between the Advanced California Mathematics Test (MA) and time in the upgrade reading program.

- The coefficient of correlation ($r=-.24$) between the Test of Chemical Comprehension (CH) and time required to improve reading skills to the apprentice level was significant at the .05 level.

- Significant correlation at the .01 level was found between the Personnel Questionnaire (LA) and hours of reading instruction ($r=-.29$).

- No significance ($r=-.12$) was found between the composite test scores and the time required in the remedial reading program.

- The highest correlation was a combination of the Test of Chemical Comprehension and Personnel Questionnaire with the time in the reading program. The R of .40 had a significant value at the .01 level.

Conclusions

This study was an explorative attempt to investigate the pre-employment test scores as predictors of time needed to upgrade reading skills to the apprentice level. The results must be viewed as tentative since some parameters not considered probably entered the picture. The results from this study indicated that the Bennett Mechanical Comprehension Test, Advanced California Mathematics Test and the composite test scores had no predictive merit. However, the results of the predictive value of the Chemical Comprehension Test and The Personnel Questionnaire were high enough to warrant further investigation.

Moreover, the petro-chemical industry of this study could conclude that a prospective employee with a low Chemical Comprehension score and a low Personnel Questionnaire score could be expected to require a longer length of time to upgrade reading skills to that of the apprentice level than an individual with a higher score on these two tests.

Recommendations

Major industries have been attempting to improve basic academic skills, according to Wenig and Wolansky (1972). However, it was evident to this researcher that an obvious gap in knowledge existed concerning job

training in industry for the low skilled. The following areas are suggested for future study:

- Would lowering the readability level of apprentice material affect job performance?
- What basic academic skills are needed for on-the-job work assignments?
- What are the long term economic benefits of upgrade industrial programs to the individual, the employer, and society?
- How can the most promising upgrade program strategies be disseminated to interested persons or industries?

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CITED BIBLIOGRAPHY

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APPENDICES

APPENDIX A
TERMINAL OBJECTIVES FOR READING

READING OBJECTIVES
PRE-APPRENTICE TRAINING PROGRAM

COMPREHENSION

1. Given one reading selection of 280 words, representative of on and off-the-job pipefitting apprentice material, at a readability level of 9.3, the student will correctly answer no less than 90% of the 10 questions pertaining to the content.

LOCATING INFORMATION

2. Given 2 paragraphs, representative of on and off-the-job pipefitting apprentice material, the student will read and locate with 100% accuracy information within the selection as required by 5 questions.

SEQUENCING

3. After reading one given paragraph, representative of on and off-the-job apprentice material, a student will sequence five events from the selection in their proper order.

WORD ATTACK SKILL

4. When viewing a list of fifteen (15) multi-syllabic words, the student will decode the words with no less than 90% accuracy.

APPENDIX B
SAMPLE ASSIGNMENT SHEET

READING ASSIGNMENTS

Badge # 00000

Name John P. Public

Title Vocabularies
Book # 124

Title Designs for Reading
Book # 33

Title Still Cards
Book # 135

[illegible]

APPENDIX C

SELECTED BIBLIOGRAPHY OF ADULT REMEDIAL READING MATERIAL

SELECTED BIBLIOGRAPHY OF ADULT REMEDIAL READING MATERIAL

MATERIAL	LEVEL	NOTES
<p>-----</p> <p>ADDISON-WESLEY PUBLISHERS 2725 Sand Hill Road Menlo Park, California 94125</p> <p>-----</p>		
<u>Kaleidoscope Readers</u> H. A. Bamman (\$2.97 each)	2-7	Series of eight paperback readers which provide sequential development of basic skills. Somewhat phonics oriented.
<u>Reading Development Kits</u> (A,B,C) pp-9 E. H. Smith et. al. (\$80 to \$110 per kit)		These kits treat subjects such as health, law, safety, work and science in a card format. Each lesson includes reading readiness exercises, a reading selection, follow-up comprehension exercises, and a charting program.
<p>-----</p> <p>ALLIED EDUCATION COUNCIL P. O. Box 78 Galien, Michigan</p> <p>-----</p>		
<u>Met Basic Language Skills</u> Byron Chapman (\$1.95 each)	pre-9	Workbook format intended for programmed reading improvement beginning on the readiness level progressing to high school level.
<p>-----</p> <p>AMSCO SCHOOL PUBLICATIONS, INC. 315 Hudson Street New York, New York 10003</p> <p>-----</p>		
<u>Skillbook in Reading</u> Jack Norman (\$2.40 each)	8	Reading comprehension selections followed by questions.
<u>Vocabulary through Pleasurable Reading I and II</u> Harold Levine (\$2.95 each)	6-7	Reading selections from well known stories followed by vocabulary exercises.
<p>-----</p> <p>BARNELL-LOFT, LTD. 958 Church Street Baldwin, L. I., New York 11510</p> <p>-----</p>		
<u>Specific Skills Series</u> (\$1.60 each)	pp-12	The Specific Skills Series consists of 96 booklets each concentrating on a different reading skill on a specific reading level. The skills include following directions, main idea, using context, getting the facts, drawing conclusions, working with sounds, and detecting the sequence.
<p>-----</p> <p>BFA 2211 Michigan Avenue, Dept. 7113 Santa Monica, California 90404</p> <p>-----</p>		
<u>Reading for the Real World</u> (kit \$28.00)	2-4	Kit includes one cassette tape, 160 instructional task cards, ten answer explained booklets, one student handbook, all practice material represents tasks the reader will encounter in day to day situations, such as income tax forms, job evaluation forms, and installment purchase contracts.

 CLASSROOM PRODUCTIONS
 P. O. Box 2032
 Alexandria, La. 71301

Right to Read Program Kits
 (\$36.00 each)

3

High interest-low reading level full color books and filmstrips. Topics include cosmetology, nascar, slenderella, sport judo, sport karate, 10-speedracer.

 CONTINENTAL PRESS
 Elizabethtown
 Pennsylvania 17022

Reading Exercises in Black History 4-6
 Vol. 1, 2
 Fred and Carol Chernow
 (\$1.00 each)

Each volume presents 30 biographical sketches of black Americans. On the page opposite the sketch are exercises for developing reading skills and preparing for taking standardized reading and vocabulary tests.

 COMMUNACAD,
 The Communication Academy
 Box 541
 Wilton, Conn. 06897

Wordcraft I, Vocabulary Program 4-6
 Bergen Evans
 (\$74.90)

Three hundred words in thirty separate lessons are presented on 6 filmstrips, 3 cassettes (or records). The 96 page student study manual contains one pre-test and 3 posttests. The word list is for grades 4-6. However, the format is adult in nature and may be used on a remedial basis through adult level.

 EDUCATIONAL OPPORTUNITIES DIVISION
 of Follett Publishers
 1010 W. Washington Blvd.
 Chicago, Illinois 60607

Reading for a Purpose
 Adair/Curry
 (\$1.56 each)

3.9

Basic skills book dealing with a male, his family, job, interests and learning situations.

 FOLLETT PUBLISHING COMPANY
 1010 W. Washington Blvd.
 Chicago, Illinois 60607

The Turner Series
 Richard H. Turner
 (\$1.29)

4-6

Three series designed to strengthen basic skills while dealing with high interest topics common to adults.

 GLOBE BOOK COMPANY
 175 Fifth Avenue
 New York, New York 10010

Alive But Different
 M. Goltry
 (\$3.80)

2-3

Collection of 24 short-short stories dealing with a wide range of problems. Exercises follow selection.

Beyond Time and Space
 Robert Potter
 (\$3.80)

3-5

Science fiction short stories by Poe, Asimov, Bradbury and others with developmental reading exercises at the end.

The Challenge of Sports
 Henry Christ
 (\$3.80)

4-5

Units on team and individual sports are included. Accompanying the stories are exercises dealing with basic reading skills.

<u>It Happened on the Job</u> Anne Ackerman, et.al. (new, price not available)	3	Twenty short reading selections on human interest topics about workers. Learning exercises follows each selection. Reading comprehension and vocabulary skills are stressed.
<u>Matter of Judgment, A</u> Charles Spiegler and R. Goodman	5-6	Short stories, news stories, and non-fiction articles. All showing people in situations of conflict. Reading comprehension and vocabulary development stressed.
<u>Mini-Units in Reading</u> (Books 1,2)4-6 Bernard Fox and Audrey Werner (\$3.92)		Nonfiction articles adapted from newspapers and magazines which explore areas of sports, careers, hobbies, consumer problems. Exercises in vocabulary and and comprehension followup. Reviews appear throughout book.
<u>Profiles: A Collection of Short Biographies</u> Zacharie Clements and Leon Burrell (\$3.96)	3-4	This book includes 24 (2-3 pp) biographies with skill building exercises following each entry.
<u>Points of View</u> Ann Elwood and John Raht (\$4.24)	4-5	Sets of 2 or 3 selections presented from 2 or 3 points of view. Skill building exercises cover each story.
<u>Reading Powertapes Program</u> Brown, et.al. (\$98.00)	4-5.5	Set consists of 24 taped lessons to be used with a workbook. Students listen to the story to do the exercises in the workbook. Emphasis is placed on vocabulary, comprehension and study skills.
<u>Real Stories Series</u> (Book A,1,2) 3-6 Katz, Milton et.al. (\$4.28)		Easy to read selections are accompanied by reading skill exercises. Selections are nonfiction and short.
<u>Something True, Something Else</u> Ann Elwood \$4.76)	4-5	This text has 22 longer stories (4-7 pp.) about adventure, science fiction and the supernatural. Skill building exercises follow stressing vocabulary and comprehension skills.
<u>Stranger than Fiction</u> Susan Halpern (\$4.20)	3	Each 1-2 page selection is presented as a newspaper clipping. Thirty-six selections are presented. Exercises follow article.
<u>Tales of Mystery and the Unknown</u> Robert Potter (\$3.80)	4	This book contains 18 stories adapted from mystery and science fiction classics. Exercises in details, inference and vocabulary follow.
<u>The World of Sports</u> (Bks. 1 & 2) 4-5 Henry Christ (\$3.96)		Nonfiction articles about a variety of games and the people who play them. Each selection is followed by exercises providing practice with basic reading skills.

 GOODYEAR PUBLISHING CO., INC.
 Box 18486
 Salt Lake City, Utah 84118

<u>Reading for Survival</u> (Vol. 1,11) 2-6 Anne Adams, et.al. (\$8.95)		Each volume offers 90 functional reading lessons plus reproducible worksheets using everyday printed matter - postal forms, order forms, schedules and labels.
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 HAMMOND, INC.
 Hammond Building
 Maplewood, New Jersey 07040

Hammond Reading Skills Program
 (\$1.20)

3-6

The skills program consists of 24 programmed workbooks each concentrating on a different reading skill on a specific reading level. The skills include sequencing, context, sounds, inferences, following directions, and main idea.

 HOUGHTON MIFFLIN COMPANY
 Pennington - Hopewell Road
 Hopewell, New Jersey 08525

Troubleshooter 1: Word Mystery
 Patricia Benner and Virginia Law
 (\$1.92; T.E. \$2.08)

7-8

Cumulative exercises concerned with dictionary usage, synonyms, reading in context, and noun meaning relationships.

 JAMESTOWN PUBLISHERS
 P. O. Box 6743
 Providence, Rhode Island 02940

Adult Reader Series: The Man Who 2
Stopped Time
 Judith Andrews Green
 (\$2.00)

A grammar lesson accompanies each story. Ten questions follow the selection and are designed to develop the ability to isolate details, recall facts, retain concepts, organize facts, understand the main idea, draw conclusions, make judgments, make inferences, recognize tone, understand characters, and appreciate literary forms.

Comprehension Skills Series
 (book \$1.75; cassette \$6.50)

4-8

Booklets and cassettes designed to develop specific comprehension skills.

Content Skills Series
 (book \$2.50; cassette \$6.50)

4-12

Five books on each level deal with five subjects found in the traditional secondary curriculum--English, social studies, mathematics, science, and practical arts.

Essential Skills Series
 Walter Pauk
 (\$2.25)

3-12

Twenty booklets are arranged on ten reading levels. There are two booklets available for each grade level emphasizing six categories of comprehension: 1) subject matter, 2) main ideas, 3) supporting detail, 4) conclusions, 5) clarifying devices, and 6) vocabulary in context.

 J. B. LIPPINCOTT COMPANY
 Educational Publishing Division
 East Washington Square
 Philadelphia, Pa. 19105

Reading for Meaning
 W. S. Guier, et.al.

4-12

Short reading selection, brief "dictionary" of the more difficult or unusual words, followed by activities designed to develop particular reading skills.

MACMILLAN PUBLISHING COMPANY, INC.
866 Third Avenue
New York, New York 10010

<u>Fact or Fiction?</u> (\$1.60)	6	Adventure and courage short stories, followed by comprehension exercises.
<u>Four Short Mysteries</u> (\$1.40)	6	Stories about a bank robbery, a murder, a missing Canadian woodsman and a wild chase across Scotland, followed by comprehension questions and a glossary.
<u>Spectrum of Skills</u> (\$3.20)	2-8	A multilevel program of sequential instruction in word analysis, vocabulary development, and reading comprehension.

MCGRAW-HILL BOOK COMPANY
330 W. 42nd Street
New York New York 10036

<u>+10 Vocabulary Booster</u> William Kottneyer (varies \$150-\$350)	4-12	+10 is an audio-based program of vocabulary expansion. Pupils hear the words on tape, see the words as written by the teacher and feel it as they write in their books. Kits include cassette tapes, student notebooks, mastery tests teacher notebook, and wallcharts.
<u>Reading Skill Cards</u> \$24.00)	2-8	Short reading selections on cards in kit form with six comprehension and vocabulary questions.

CHARLES E. MERRILL PUBLISHING COMPANY
1300 Alum Creek Drive
Columbus, Ohio 43216

<u>Really Reading</u> Arthur W. Heilman, et.al. (\$2.60)	8	Combination of word roots, phrase reading, vocabulary, and interpretation of students' conceptual knowledge.
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NEW READERS PRESS
P. O. Box 131
Syracuse, New York 13210

<u>Read the Instructions First</u> Calvin Greatsinger (\$1.50)	5-6	Selections concerning everyday instructions, such as those on a bottle of cold medicine and steam iron, are followed by comprehension questions. Answers to the questions and a vocabulary list are included.
<u>Signs</u> (\$3.50 per set)	0-3	Three books of pictures which contain signs and other reading material. Very good for teaching the non-reader.
<u>Signs Around Town</u> Calvin Greatsinger (\$1.50)	4-6	Pictures of twenty-five signs followed by questions about what the signs say, as well as how to interpret them.
<u>New Streamlined English Series</u> Books 1-5 (range from \$1.60 to \$2.20)	0-5	This series was written to be used for one-to-one tutoring. It is a basic reading and writing course which begins with identification of the letters of the alphabet.
<u>Money Spent</u> Jean Avery \$.80)	2-4	Supplemental reader for the <u>New Streamlined English</u> series which deals with money for the new adult reader.
<u>More Cars, Cars</u> Jean Avery (\$1.50)	2-3	Supplemental reader for the <u>New Streamlined English</u> series. Has reading selections and exercises.

<u>Machine-Age Riddles</u> Calvin Greatsinger (\$1.65)	3+	Many machines an adult would encounter in everyday life are illustrated and questions are posed. Examples include bank money machines, change giving machines and 35 others. Answers are given in the book.
<u>Let's Look It Up</u> Patricia Waelder (\$1.50)	6	Students are given sample pages from a variety of reference sources, then comprehension and inference questions are asked. Answers are given in the book.
<u>Label Talk</u> Calvin Greatsinger (\$1.50)	5	Students are given sample labels from everyday products. Below each label is a list of ten questions concerning the information on the label. Answers are included.
<u>Everyday Reading and Writing</u> Frank C. Laubach et al (\$4.75)	6-8	This paperback worktext contains interesting chapters concerning topics such as use of the telephone, library, and dictionary as well as how to fill in job applications, business forms, and how to read the newspaper. Answers in a teacher's guide are supposed to be available October, 1978.
<u>Crossword Puzzles for Skill</u> <u>Books 1, 2, 3, 6 4</u> Constance and Bradford Stiles (\$1.65)	2-5	These booklets contain crossword puzzles which emphasize the basic vocabulary words found in the <u>New Streamlined English Series</u> .
<u>Cars, Cars, Cars</u> Sea Avery (\$1.50)	1-3	Short reading selections and questions concerning cars.
<u>Be Informed on Using the Library</u> Muriel Ringstad (\$1.85)	6	Five chapters compose this pamphlet concerning the use of the library. Each chapter has exercises at the end. Answers are found in the pamphlet.

ODDO PUBLISHING COMPANY
Beauregard Blvd.
Fayetteville, Georgia 30314

<u>Photocubulary</u> <u>Gifted Teachers Books</u> (\$1.99)	3-5	Vocabulary is taught through the pictures of over 300 items. The names of the items are written, printed, and used in a contextual setting. Each lesson has a written selection as well as exercises to accompany the text.
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PRENTICE HALL
Englewood Cliffs, New Jersey
07632

<u>Be A Better Reader</u> Nila Fenton Smith (\$3.60)	4-12	Readings in the content areas with questions concerning vocabulary and comprehension.
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PROVIDENCE SCHOOL DEPARTMENT
c/o Dr. Mary Mulvey
396 Smith Street
Providence, RI 02908

<u>Project EBA/COPE Learning Activity</u> <u>Packets</u> (.50 per packet)	1-6	These packets are learning modules which include general and specific objectives, a teaching strategy, materials, identification and evaluation indicators. Stories, dialogues, vocabulary and computational exercises, games or puzzles makeup the instructional component of the package. Packages average 20-30 pages each. There are approximately 90 packets.
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 RANDOM HOUSE
 400 Hahn Road
 Westminster, Md. 21157

<u>Challenger - A Spanish Reading Unit</u>	4-6	Short fiction booklets concerning Spanish speaking people written by authors who are Spanish speaking. The unit includes 8 copies of 5 Spanish interest paperbacks, a set of study cards, and a teacher's guide.
(\$24.33)		

<u>Challenger - A Black Reading Unit</u>	4-6	Short fiction booklets concerning Blacks written by authors of the ethnic group. Includes 8 copies of 5 Black interest paperbacks, a teacher's guide and a set of study cards with comprehension and discussion questions.
(\$24.33)		

 READERMAN
 P. O. Box 8942
 Boise, Idaho 83707

<u>"Breaker One Nine, You Got a Copy?"</u>	4-6	This book contains 55 two-character C.B. plays, special language activities, definitions, and numbers for C.B. terms are included. Permission is granted for duplicating any page.
William Kirkland		
(\$5.50)		

 READER'S DIGEST SERVICES, INC.
 Educational Division
 Pleasantville, New York 10570

<u>Adult Readers</u>		Each of the 12 <u>Adult Readers</u> offers mature interest, low vocabulary stories of courage, self-reliance and adventure.
<u>Mystery of the Mountain</u>	1-2	
<u>Second Chance</u>	1-2	
<u>Send for Ted</u>	1-2	
<u>Workers in the Sky</u>	1-2	
<u>Men Who Dare the Sea</u>	2-3	
<u>A Face to Remember</u>	2-3	
<u>Valley of 10,000 Smokes</u>	2-3	
<u>First at the Finish</u>	3-4	
<u>Guides to High Adventure</u>	3-4	
<u>I Fell 18,000 Feet</u>	3-4	
<u>What's On the Moon?</u>	3-4	
(\$1.31 each)		

<u>Reader's Digest Skill Builders,</u>	1-9	There are 24 Silver Skill Builders--four at each reading level 1-6. They are formula-controlled at each level. After each selection are 2 pages of follow-up exercises divided into 3 sections: recall skills, inference/comprehension skills, and discussion questions.
<u>Silver Edition</u>		
(\$1.50 each)		

Three Advanced Reading Skill Builders are available--one each at levels 7, 8, and 9. All selections are followed by exercises and follow-up activities.

 RELEVANT PRODUCTIONS
 P. O. Box 68
 Indian Rocks Beach, Florida 33535

<u>Consumer Education Kits</u>		High interest, low-vocabulary kits based on consumer information.
(varies \$14.95-\$31.75)		
<u>Ads Talk</u>	2-9	
<u>Buyer's Rights</u>	2-6	
<u>Buying a Used Car</u>	4-1	
<u>The Comparative Shopper</u>	2-8	

Consumer Fraud	4.3
Consumer Laws	4.3
Consumerism	4.5
Credit Application	
Driver's License Applications	
Earning Money	4-5
Establishing Credit	4
Financing a Car	4
Finding a Job	2
First Weeks of Work	4.1
Getting Credit	2.9
I Can Get a Job	
Insurance Applications	
The Interview	4.3
Making Decisions	4.4
Reading Ads	4.8

 FRANK E. RICHARDS COMPANY
 215 Church Street
 Phoenix, New York 13135

Application Forms
 Benjamin Filitch
 (\$1.50)

This workbook gives a step-by-step approach to learning how to fill out employment application forms. Designed to help in understanding important application words and specific direction demands.

 RUTGERS - THE STATE UNIVERSITY
 Vocational Technical Curriculum
 Laboratory
 Building 4103-Kilmer Campus
 New Brunswick, New Jersey

Automobile Maintenance
 William A. Kessman
 (\$3.00)

2

Reading selections, games, puzzles and comprehension questions in an adult format.

 SCHOLASTIC BOOK SERVICES
 904 Sylvan Avenue
 Englewood Cliffs, New Jersey 07632

Countdown
 Beryl Goldsweig
 (\$1.50)

6

Study skills are presented in a variety of ways utilizing a cartoon format.

Chillers and Thrillers
 Bernhardt J. Hurwood
 (\$1.00)

3-5

The Cloze Method is used to tell 25 horror stories. Every tenth word is missing. The missing words are given for the first story, but not for the following selections.

Spotlight
 (\$1.00)

5

This booklet contains short reading selections concerning people in the spotlight. Exercises accompany the text.

Sports: A Mirror of Our Society
 Charles Wrye, ed.
 (\$2.50 text; \$1.25 Logbook;
 \$5.00 Teaching Guide)

3-6

This anthology is concerned with the effects of sports on individuals and society as a whole. Include poetry, plays, short stories and factual material.

Sprint
 (\$1.00)

7

This collection of exercises and selections are aimed at improving reading speed.

<u>Trackdown</u> Beryl Goldsweig (\$1.00)	5	Mystery stories put the reader in the position of the detective. Often the reader must complete the accompanying exercise in order to solve the mystery.
<u>Word Power</u>	4-7	Selections of puzzles help the student to increase his vocabulary and aid in his grammar usage.

SCIENCE RESEARCH ASSOCIATES, INC.
359 East Erie Street
Chicago, Illinois 60611

<u>Rochester Occupational Reading Series--The Job Ahead</u> Herman Goldbert & Winifred Brumber (\$10.07)	2-5	Stories emphasize attitudes and skills for success on the job and in society. Text is printed at three reading levels (grades 2-5). Each level has same subject matter, sequence, illustrations, and cover.
<u>Designs for Reading</u> (\$11.20)	4-9	Short reading selections with skill building exercises.
<u>Reading for Understanding</u> (\$22.34)	3-16	Three kits with short selections designed to develop comprehension, analyze ideas, and arrive at logical conclusions.
<u>Our Story: Women of Today and Yesterday (Dimension Series)</u> (\$74.94)	3-9	Stories and exercises dealing with famous personalities as well as everyday people.
<u>As America Grew (Dimension Series)</u> (\$73.94)	3-9	One hundred-twenty reading selections cover U.S. History from the Reconstruction through present times. Skill cards provide comprehension questions and follow-up activities.
<u>We Are Black (Dimension Series)</u> (\$103.94)	2-6	Kit with cards concerning Black people and Black history. Questions are good for comprehension and vocabulary development.
<u>Manpower and Natural Resources (Dimension Series)</u> (\$145.34)	4-12	Three hundred four-page reading selections from popular books and magazines.
<u>Vocabulary 3</u> Don H. Parker, et.al. (\$138.67)	5-12	Kit format dealing solely with language enrichment and vocabulary skills arranged in six levels of reading difficulty.

SCOTT, FORESMAN & COMPANY
1900 E. Lake Avenue
Glenview, Illinois 60025

<u>Basic Reading Skills</u> Marion Monroe, A. Sterl Artley (\$1.98)	4-5	Workbook format covering the fundamental skills in reading.
<u>Creative Choices</u> David Madden, ed. (\$3.75)	8	Selections from magazines followed by discussion questions. The same format is kept as was used in the magazines.
<u>Tactics in Reading</u> Olive S. Niles (booklets \$.65-\$1.80)	6-11	Either in workbook or kit format these skill building materials are on six consecutive levels and are concerned with a variety of different skill areas.

 STECK-VAUGHN COMPANY
 Box 2028
 Austin, Texas 78768

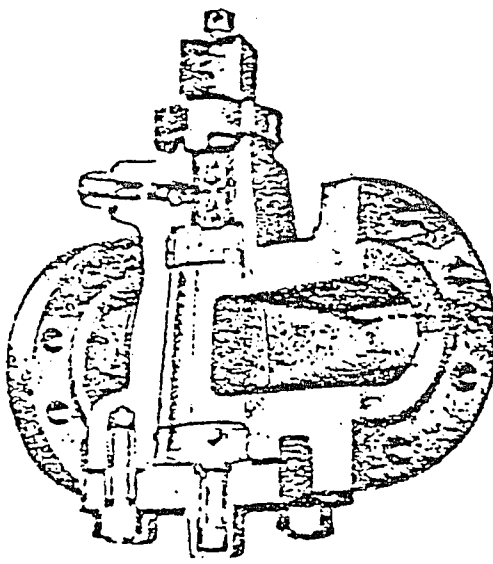
<u>Adult Readings: A Sequential Program</u> Sam Dauzat and JoAnn Dauzat (\$1.56)	0-8	A programmed instruction format is used to teach basic reading skills. Content selections deal with adult topics: occupations, government and law, interpersonal relationships, consumer economics and community resources.
<u>Steps to Learning</u> (\$1.35)	1-4	Selections are built around adult interests and problems in a rural setting. Basic reading and number skills are taught.
<u>Basic Reading</u> Harley A. Smith and Ida Wilbert (\$1.35)	5-7	Exercises provide practice in comprehension, plus some grammatical information, using reading selections especially for adults.
<u>Family Development Series</u> (Revised) RFD Project, University of Wisconsin (\$1.86) (\$1.86)	4-6	Exercise material based on consumer procedures emphasizes comprehension.
<u>We Are What We Eat</u> (Revised) Hazel T. Spitze & Patricia Rotz (\$1.77)	3-4	Illustrated workbook providing reading and exercises about meal planning, the selection and preparation of good foods, and economical shopping habits.
<u>Where Does the Money Go?</u> Hazel T. Spitze & Patricia Rotz (\$1.56)	3-4	Illustrations, stories, and exercises based on the lives of three fictitious families.
<u>You and Your Money</u> (Revised) Dorothy Y. Goble (\$1.56)	3-4	Adult-oriented reading material and instructional exercises in workbook format.
<u>My Country - The U.S.A.</u> Edwin H. Smith & Flo Lutz (\$1.56)	3-4	Basic reading skills in an illustrated workbook with simple exercises and activities based on stories about our country and government.
<u>How to Get a Job and Keep It</u> (Revised) Dorothy Goble (\$1.56)	5-6	Illustrated workbook on good procedures for finding and applying for a job and gives pointers for a successful job interview.
<u>Famous Black Americans</u> John King and Marcet King (\$1.90)	6-7	Thirty-three stories about Black Americans and exercises to build skills in comprehension, vocabulary, and creative thinking. Level lower than indicated by publisher.
<u>Viva! Famous Mexican Americans</u> Ann Crawford and Pedro Chaps, Jr. (\$1.80)	5-6	Biographies of contemporary Mexican Americans that build comprehension skills and vocabulary.

APPENDIX D

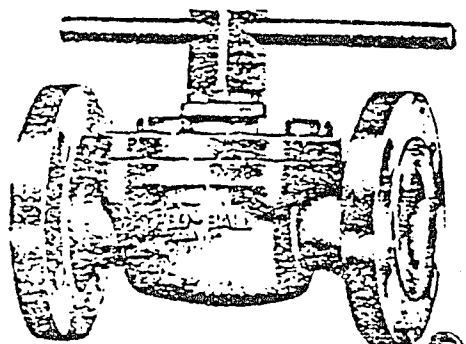
SAMPLE TERMINAL OBJECTIVE TEST FOR READING

I. COMPREHENSION FORM B

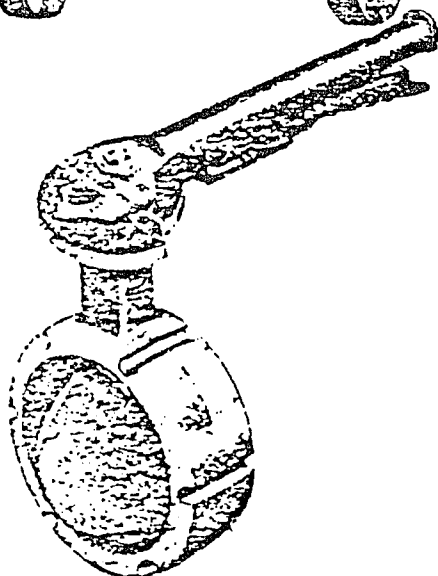
DIRECTIONS: Read the selection and answer each question by placing the correct answer in the blank. You will not be allowed to look back at the selection to answer the questions. Read Carefully.



Cocks, or plug valves, operate by the rotation of a tapered plug which has a slot cut in it. When the slot is at right angles to the line, it is closed. Cocks are used where a positive shutoff is required, as in gas service. Cocks may have either screwed or flanged ends. To retain ease of operation cocks must be greased on a regular basis and this presents maintenance problems, so they should only be used where absolutely necessary.

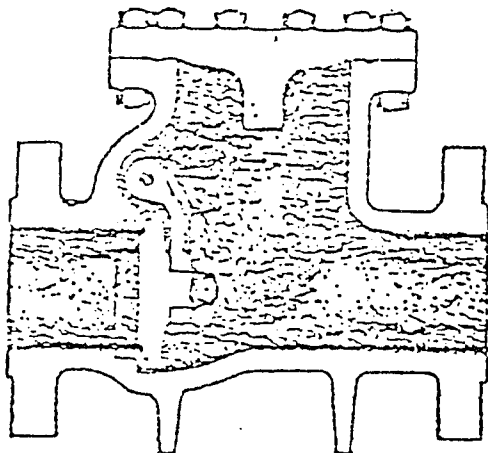


Ball Valves are similar, in principle, to a cock except that a ball is used instead of a tapered plug. They are used when a quick-opening, tight shutoff valve is required such as natural gas service or snuffing steam.

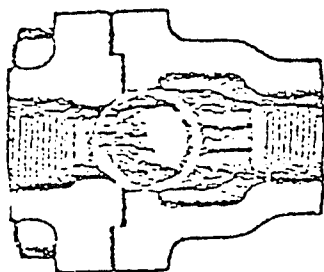


Butterfly Valves are generally used for low pressures and temperatures such as water service. Particularly in the larger sizes, their small face to face dimension makes them preferable to a gate valve.

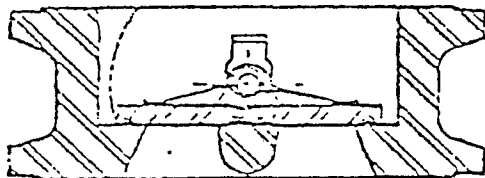
I. COMPREHENSION FORM B Continued...



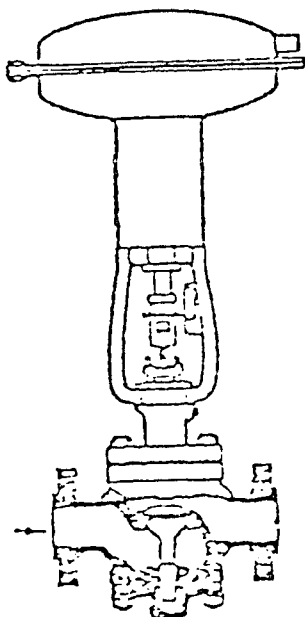
Check Valves are used to prevent reverse flow in pipe lines. The swing check is the most common type and it may have either screwed or flanged ends.



Ball Check valves are used only in the small sizes, and usually have threaded ends.



Wafer type check valves require much less space than the swing type which makes them very useful in certain situations. This type is simply installed between a pair of flanges, hence its name "wafer".



Control Valves are used to control the flow automatically. They are usually actuated by compressed air and may have either screwed or flanged ends. There are many variations in the types of control valves but one symbol will suffice for all types.

READING TEST

Form B Answer Sheet

EMPLOYEE _____ BADGE _____ DATE _____

I. COMPREHENSION

DIRECTIONS: Read the selection and answer each question by placing the correct answer in the blank. You will not be allowed to look back at the selection to answer the questions.

1. Which valve is used to control flow automatically?

2. What valve is used to prevent reverse flow in pipelines?

3. Because of a maintenance problem which valve should be used only where absolutely necessary?

4. Which valve would be used for shutting off natural gas or snuffing steam?

5. Which valve is generally used for low pressures and temperatures?

6. Which valve gets its name from being installed between a pair of flanges?

7. What does preferable mean? _____
8. What does rotation mean? _____
9. What does tapered mean? _____
10. Why are valves important in pipe work?

II. LOCATING INFORMATION - FORM B

DIRECTIONS: Read the selection and answer each question in the blanks on the answer sheet. You will be able to reread the selection to locate the answers.

GENERAL INFORMATION ON SPUR GEARS

Gears are used to transmit power where no slippage can be tolerated. Gears are more expensive to use than belts, but belts allow slippage. Your automobile fan is driven by a V-belt, because some slippage is allowable. The timing mechanism, however, which must have a split-second relationship with the crankshaft and pistons, is gear driven. The relative velocities of the gears in mesh depend upon their pitch diameters.

1. Both belts and gears are used to transmit_____.
2. It is usually cheaper to transmit power by _____.
3. When no slippage can be allowed, we specify_____ to transmit power.
4. The camshaft of your automobile opens and closes the valves of each cylinder at split-second intervals. The camshaft is driven by _____.
5. The relative velocities of meshing gears depend upon their _____.

III. SEQUENCING - FORM B

DIRECTIONS: Read the selection carefully. You will not be allowed to look back at the selection. After you have read the selection place in numerical order the list of items given on the answer sheet.

CONDITIONS

You will be given a standard Saddle and Beveling Burning Machine, a power source, and assorted lengths of 6" carbon steel pipe.

PERFORMANCE

You are expected to:

Complete pre-checks

Install correct gears and
cam as per chart

Make necessary adjustments

Cut two pieces of pipe 12"
long with a bevel on both
ends

Cut two pieces 6" long, with
a 6" on 8" pipe intersection
saddle

Shut down machine

Clean up equipment

CRITERION

Your performance will be judged on the correct and safe operation of the burning machine. You will not be judged on the accuracy of the task. The instructor will grade you on ten different check-points during the test. You are required to perform nine of the ten correctly in a period of 30 minutes.

IV. MULTI-SYLLABIC WORDS

Form B

DIRECTIONS: Pronounce each of the following words to your instructor.

evaporation

instillation

firefighting

ignition

immersed

underlining

specifications

terminal

presentation

electrically

hydraulic

polyethylene

increment

circumstance

horizontal

VITA

VITA

Sarah Nell Taylor Rentz, the daughter of Kernell D. and Sadie G. Taylor, was born in Laurel, Mississippi on December 16, 1937. After graduation from Calhoun High School in 1955, she entered Jones County Junior College for one year of college work. She received a Bachelor of Science degree in 1958 and a Master of Science degree in 1959 from the University of Southern Mississippi. She completed the requirements for the Doctor of Education degree at Louisiana State University in August of 1979.

She taught elementary school at Calhoun and Woodley Elementary Schools in Mississippi. Other positions followed in this order: Director of Reading at Hinds Junior College; Guest Professor at the University of Syracuse in New York; Reading Specialist at Northeast State University, Monroe, Louisiana; Coordinator of Special Academic Programs at the Louisiana State Department of Hospitals; Reading Specialist at Gables Academy, Baton Rouge, Louisiana; and Reading Consultant for a major petro-chemical complex.

She is married to James A. Rentz of Ruston, Louisiana. They have three children, Alan, David and Dee Ann.

EXAMINATION AND THESIS REPORT

Candidate: SARAH TAYLOR RENTZ

Major Field: EDUCATION

Title of Thesis: "PRE-EMPLOYMENT TEST SCORES AS PREDICTORS IN A REMEDIAL READING PROGRAM"

Approved:

Eric L. Thurston

Major Professor and Chairman

James H. Traynham

Dean of the Graduate School

EXAMINING COMMITTEE:

Sam Adams

Earl Cheek, Jr.

Louis L. Lanning

David C. Yang

Date of Examination:

June 12, 1979